**Course: Math 8 CCSS Standard Number(s): 8.EE.4 Day: 22**

**Unit # and Title: Unit One – Expressions and the Number System Block(s)/Period(s): 1 2 3 4 5 6**

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| **Unit Essential Question(s):** | **When would you use the properties of integer exponents?** | | |
| **Learning Target(s)**  **“I can statements”** | **I can multiply or divide two numbers written in scientific notation.** | | |
| **Essential Vocabulary** | **exponent**  **integer**  **laws of exponents**  **negative**  **positive**  **expression**  **power of ten**  **standard form**  **decimal** | | |
| **Resources and Materials** | **Teacher** | | **Student** |
| **Power point**  **Glencoe C3 Lessons: 2-9**  **On Core Lessons: 1-2**  **Math’scool Lesson** [5.7](https://gems.gcsnc.com/lvcontentitems_23/lvContentItems_23/DispForm.aspx?ID=1670)  **Algebra’scool Lesson** [11.2](https://gems.gcsnc.com/lvcontentitems_23/lvcontentitems_23/dispform.aspx?id=1305)  **Holt McDougal Lesson 3-4**  **Destination Math:**  **Session:** [**Working with Powers**](https://gems.gcsnc.com/lvcontentitems_41/lvContentItems_41/DispForm.aspx?ID=222&source=/_layouts/LearningVillage/CloseDialog.aspx)  **Websites:** [Converting scientific notation](http://janus.astro.umd.edu/astro/scinote/)  [King Kong scientific notation game](http://www.quia.com/quiz/382466.html)  [Pod Launcher scientific notation game](http://www.coolmath-games.com/0-pod-launcher/index.html) | | **Tool kit** |
| **8 Mathematical Practices:** | | | |
| 1. Make sense of problems and persevere in solving them.  2. Reason abstractly and quantitatively.  3. Construct viable arguments and critique the reasoning of others.  4. Model with mathematics. | | 5. Use appropriate tools strategically.  6. Attend to precision.  7. Look for and make use of structure.  8. Look for and express regularity in repeated reasoning. | |
| **Activating Strategy**  **(Opening Activity)** | **Students will complete WARM UP questions displayed in power point, on the screen. (review questions relating to previous lessons)** | | |
| **Cognitive Teaching Strategies**  **Me/We/Few/You**  **(TIP-Teacher input**  **SAP-Student actively participates**  **GP – Guided Practice**  **IP-Independent Practice)** | **Students will be given a multiplication and division problem in scientific notation format, to work out in pairs.**  **Example 1:**  (6.45 x 1011)(3.2 x 104) = (6.45 x 3.2)(1011 x 104) *Rearrange factors*  = 20.64 x 1015 *Add exponents when multiplying powers of 10*  = 2.064 x 1016 *Write in scientific notation*  Example 2:  *Subtract exponents when dividing powers of 10*  = 0.515 x 107 *Write in scientific notation*  = 5.15 x 106  Example 3:  (0.0025)(5.2 x 104) = (2.5 x 10-3)(5.2 x 105) *Write factors in scientific notation*  = (2.5 x 5.2)(10-3 x 105) *Rearrange factors*  = 13 x 102 *Add exponents when multiplying powers of 10*  = 1.3 x 103 *Write in scientific notation*  Example 4:  The speed of light is meters/second. If the sun is meters from earth, how many seconds does it take light to reach the earth? Express your answer in scientific notation.  *Solution:*  (light)(*x)*= sun, where *x* is the time in seconds  Students understand the magnitude of the number being expressed in scientific notation and choose an appropriate corresponding unit.  Example 5:  is equivalent to 300 million, which represents a large quantity. Therefore, this value will affect the unit chosen.  **Students will complete OPEN NOTES from the teacher generated power point, containing instruction on how to multiply and divide numbers in Scientific Notation format, including vocabulary and examples and guided practice.**  **Students complete independence practice in small groups or pairs.**  **Student workbook page 12 and page 13, pizazz worksheets pages 78-79**  **Students will be asked to explain their answers to the rest of the class.** | | |
| **Summarizing Strategy**  **(Closing Activity)** | **Student will complete a white board review, answering questions presented on the screen from teacher’s power point.** | | |
| **Assessment/Homework** |  | | |
| **Extending/Refining** |  | | |